

Date: Fri, 1 Jul 94 04:30:28 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #179
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 1 Jul 94 Volume 94 : Issue 179

Today's Topics:

 1993 IC Master \$75 postpaid (USA only).
 General electronics newsgroup? (3 msgs)
 How make simple FM (88-108MHz) receiver? (2 msgs)
 Inductance of toroids? (2 msgs)
 Project Idea!
 Where might I find..

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 30 Jun 1994 17:33:27 GMT
From: fluke!swifty@beaver.cs.washington.edu
Subject: 1993 IC Master \$75 postpaid (USA only).
To: ham-homebrew@ucsd.edu

I have the 1993 IC Master for sale for \$75 shipped postpaid
in the United States via 4th Blass Books. Prepaid by check or
money order.

Send me email if you wish to purchase this.

--

 Steve Swift, Sr. Staff Engineer
Domain: swifty@tc.fluke.COM
Voice: (206) 356-5737 (Voice mail), FAX: (206) 356-5108

UUCP: {uw-beaver,microsof,sun}!fluke!swift
US mail: Fluke Corporation/ P.O. Box 9090/ MS 266D/ Everett WA 98206

Date: 30 Jun 1994 14:41:08 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!howland.reston.ans.net!EU.net!sunic!
news.tele.fi!news.funet.fi!sauna.cs.hut.fi!freenet.hut.fi!freenet.hut.fi!
mahjelt@network.ucsd.edu
Subject: General electronics newsgroup?
To: ham-homebrew@ucsd.edu

Are there any newsgroups for general electronic stuff? This one is the only one I found so far, and it's far from general. I'd like to discuss some audio circuits. Anybody know where?

-Mathias
--

Date: 30 Jun 1994 20:54:29 GMT
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!usenet.ins.cwru.edu!
po.cwru.edu!sct@network.ucsd.edu
Subject: General electronics newsgroup?
To: ham-homebrew@ucsd.edu

In article <2uuli4\$bgc@freenet.hut.fi>,
Mathias Hjelt <mahjelt@freenet.hut.fi> wrote:
> Are there any newsgroups for general electronic stuff?

Take a look at sci.electronics. The volume is high, but the noise level is surprisingly low.

Stephen

--
Stephen Trier
sct@po.cwru.edu
KG8IF

Date: Fri, 01 Jul 1994 02:10:56 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!usenet.ins.cwru.edu!ns.mcs.kent.edu!
kira.cc.uakron.edu!malgudi.oar.net!witch!ted!mjsilva@network.ucsd.edu
Subject: General electronics newsgroup?
To: ham-homebrew@ucsd.edu

In article <2uuli4\$bgc@freenet.hut.fi>, Mathias Hjelt (mahjelt@freenet.hut.fi) writes:

>

>Are there any newsgroups for general electronic stuff? This one is the
>only one I found so far, and it's far from general. I'd like to discuss
>some audio circuits. Anybody know where?

>

sci.electronics is what you want. LOTS of activity.

Mike, KK6GM

Date: 30 Jun 1994 14:39:50 GMT

From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!EU.net!sunic!news.funet.fi!
sauna.cs.hut.fi!freenet.hut.fi!freenet.hut.fi!mahjelt@network.ucsd.edu

Subject: How make simple FM (88-108MHz) receiver?

To: ham-homebrew@ucsd.edu

Hi, does anybody have any schematics or any stuff about how to build
a simple FM receiver (with stereo decoding)? Are there any nifty little
IC's around that contain most of the electronics?

-Mathias

--

Date: 30 Jun 1994 16:12:26 -0700

From: ihnp4.ucsd.edu!usc!nic-nac.CSU.net!charnel.ecst.csuchico.edu!olivea!
sgigate.sgi.com!sgiblab!gatekeeper.us.oracle.com!barrnet.net!nntp.crl.com!
crl2.crl.com!not-for-mail@network.ucsd.edu

Subject: How make simple FM (88-108MHz) receiver?

To: ham-homebrew@ucsd.edu

Mathias Hjelt (mahjelt@freenet.hut.fi) wrote:

: Hi, does anybody have any schematics or any stuff about how to build
: a simple FM receiver (with stereo decoding)? Are there any nifty little
: IC's around that contain most of the electronics?

Check out the Phillips (or Signetics) TDA-7000. This chip does most of
the FM receiver chore, but you will need to find another chip to do the
FM decoding.

--

Don Miller Electronic System Products
dmiller@crl.com

Date: Thu, 30 Jun 1994 14:48:15 GMT
From: ihnp4.ucsd.edu!agate!spool.mu.edu!news.clark.edu!netnews.nwnet.net!
reuter.cse.ogi.edu!hp-cv!hp-pcd!hpcvsnz!tomb@network.ucsd.edu
Subject: Inductance of toroids?
To: ham-homebrew@ucsd.edu

Mike Czuhajewski (Mike.Czuhajewski%hambbs@wb3ffv.ampr.org) wrote:
: Does anyone know where I can find the formula for finding the
: inductance of a toroidal inductor? I do NOT mean the formula which is
: derived on the published "Al" values, but rather a formula based on the
: physical measurements such as height, circumference, etc. (There has
: been a similar formula for years in the ARRL handbook for solenoidal
: inductors, but I've never seen one for toroids.)
:

Date: 30 Jun 1994 19:35:34 GMT
From: ihnp4.ucsd.edu!usc!nic-nac.CSU.net!charnel.ecst.csuchico.edu!psgrain!
news.tek.com!tekgp4.cse.tek.com!royle@network.ucsd.edu
Subject: Inductance of toroids?
To: ham-homebrew@ucsd.edu

Mike.Czuhajewski%hambbs@wb3ffv.ampr.org (Mike Czuhajewski):

>Does anyone know where I can find the formula for finding the
>inductance of a toroidal inductor? I do NOT mean the formula which is
>derived on the published "Al" values, but rather a formula based on the
>physical measurements such as height, circumference, etc. (There has
>been a similar formula for years in the ARRL handbook for solenoidal
>inductors, but I've never seen one for toroids.)

>Part Two--Does anyone know the exact methodology used by the industry

>to determine the "Al" value of toroidal forms? Those values are
>usually specified as microhenries per 100 turns for powdered irons, and
>millihenries per 1000 turns for ferrites. The question: Do they wind
>a single turn and extrapolate that, do they wind the 100 or 1000 turns
>and measure resulting inductance, if they do it that way do they then
>turn around and calculate the distributed capacitance and factor that
>out, etc... 73 DE WA8MCQ

$$L = (4 \times 10^{-9} \times \pi \times \mu_{rel} \times A / l) \times n^2$$

where

L = inductance in henrys
 μ_{rel} = relative permeability of the core
 A = core cross-sectional area in cm²
 l = magnetic path length in cm (typically the average of outer & inner
 circum.)
 n = number of turns

The $4 \times \pi \times 10^{-9}$ comes from the value of the permeability of free space, and the use of cm instead of m for A and l.

The term in parentheses is Al in henrys/turn².

Al is measured using a fairly large number of turns, because the formula doesn't hold for sparse windings, particularly with low-permeability materials or at frequencies at which permeability is low. This is due to the fact that with sparse windings, not all the flux from each turn is coupled to every other turn, resulting in reduced inductance. It's also typically measured at a sufficiently low frequency that the effect of capacitance is negligible.

Note that the relative permeability is a function of frequency and of flux density, so the inductance (and Al value) will change with these parameters. Also, the permeability actually is a complex quantity, leading to frequency- and flux density-related loss.

Roy Lewallen, W7EL
 roy.lewallen@tek.com

 Date: Thu, 30 Jun 1994 13:03:31 GMT
 From: ihnp4.ucsd.edu!swrinde!emory!europa.eng.gtefsd.com!sundog.tiac.net!
 usenet.elf.com!rpi!psinnntp!arrl.org!zlau@network.ucsd.edu
 Subject: Project Idea!
 To: ham-homebrew@ucsd.edu

Erik Sorgatz (sorgatz@avatar.tti.com) wrote:

: I keep looking at that Uniden 2600 with the blown final transistor...
 : ..and I keep thinking: "How tough would it be to convert this muther
 : to 6 meters?" Well...let's see..a new display table in the uP's rom
 : so it would read "50-54" instead of "26-30", a new L0, a new mixer,
 : maybe keep the IF's as is...modify the mixers a bit, a new final..

: ..some osc in the receiver?...Hmmm??

Depends whether it has to pass spectral purity requirements. It is pretty easy to get mixing spurs -40 dB down. But, for 6 meters, you need at least -60, which isn't quite as easy. Problem is, it isn't unusual for some of those spurs to "race across the passband" as you tune the rig. Thus, no matter how tight your filters, you might not be able to filter some of them out, unless you don't mind a rig that doesn't the edges of the band.

It does seem a bit easier to do with a phasing exciter, since the mixing products can be avoided or reduced.

Yes, a tracking filter might work, except that sharp tracking filters don't seem to be available on inexpensive radios yet. You can get them as a feature on radios that cost more than new cars...

--

Zack Lau KH6CP/1 2 way QRP WAS
 8 States on 10 GHz
Internet: zlau@arrl.org 10 grids on 2304 MHz

Date: Thu, 30 Jun 1994 17:51:52 GMT
From: netcomsv!netcom.com!acarhart@decwrl.dec.com
Subject: Where might I find..
To: ham-homebrew@ucsd.edu

Where might I find a make-your-own-AM-transmitter kit?
If it is low enough power, the FCC allows transmissions on the AM band, correct?
Would I be able to power it with 6/12 volts? A car lighter?
Thank you...bye
-Allan Carhart
acarhart@netcom.com

Date: (null)
From: (null)

"The low-frequency inductance of a toroidal coil of n turns with a winding of circular corss section of diameter d and a radius of revolution D/2 inches, as shown in Fig. 22, is

$$L_o = 0.01595 * n^2 * [D - (D^2 - d^2)^{0.5}] \text{ microhenrys}$$

For toroidal coils in which the turn diameter is much less than the toroid diameter (i.e., $d < 0.1D$), the inductance is approximately

$$L_o = 0.007975 \cdot d^2 \cdot n^2 / D \quad \text{microhenrys}$$

Toroidal coil of rectangular cross section. -- When the axial depth of the winding is h and the inner and outer diameters d1 and d2 inches, respectively, as shown in Fig. 23, the low-frequency inductance is

$$L_o = 0.01170 \cdot n^2 \cdot h \cdot \log(d2/d1) \quad \text{microhenrys. "}$$

(This rather old book is still a good reference for a wide variety of fundamental information. However, not all the formulas are valid over as wide a range of parameters as you might hope; many are approximations that start to fall apart at extremes of the parameters, and often where those extremes start isn't clearly stated. Still, it's a good starting point. Note that these formulae are all for air-core coils...)

73, K7ITM

End of Ham-Homebrew Digest V94 #179
